ABSTRACT

A method for the refining of primary aluminum in hypoeutectic alloys by mixing a titanium based grain refiner into a solid/semi-solid hypoeutectic slurry is described. The method provides control of the morphology, size, and distribution of primary Al in a hypoeutectic Al-Si casting by mixing a hypoeutectic Al-Si liquid with titanium boron alloys. The invention enables grain refining techniques for SSM casting of hypoeutectic Al-Si alloys.